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ABSTRACT OF THE DISCLOSURE

The invention relates to a touch detecting teaching machine for teaching young children or those with sub-normal intelligence. The subject sits in front of a screen on which there are projected from behind two or more pictorial representations on one part of the screen and a word on the other part which is the correct description of one of the pictures. The areas of the screen on which the two or more pictorial representations are projected are sensitive to touch so that if the correct picture is touched by the subject the machine acknowledges this fact to the subject by speaking the word. The machine automatically moves on to the next set of pictures after a predetermined time whether or not the correct picture has been touched by the subject. An assessment of the subject's performance is continuously made, and the machine gives an indication when the subject's performance has reached a predetermined level so that the subject can be advanced to a more difficult set of pictures.

BACKGROUND OF THE INVENTION

Teaching machines available at the present time have been constructed for use by adults or school children of normal intelligence and consequently have required certain basic skills, e.g. the ability to read instructions, to press a series of buttons etc. before they can be operated successfully. It is therefore an object of the present invention to provide a machine which will solve some of the problems encountered when these skills cannot be assumed. It is thus principally intended for teaching young children who have not yet learned to read, adults or children of sub-normal intelligence and those persons under some form of physical and/or mental handicap. Whilst retaining the essential requirement that the subject should make frequent and observable responses, the machine creates an environment in which written material is meaningfully related to its pictorial and auditory equivalents.

SUMMARY OF THE INVENTION

According to the present invention there is provided a touch detecting teaching machine including means for displaying on one part of a display screen symbolic visual information and on the other part two or more further items one of which is related to the item in the first part of the screen, means for registering which of the two or more further items have been touched by the subject, means for giving an audible indication only if the related item is touched and means for changing the display to another display after a predetermined interval of time from the instant of touching whether or not the related item has been touched.

The touch detecting teaching machine preferably includes a slide projector having an automatic continuous slide changing mechanism, a tape recorder having a tape formed into a continuous loop and a loud-speaker whereby the subject hears a spoken word which describes the correct item if he has touched the correct item displayed on the screen, the speaker being muted if the incorrect

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item is touched. The tape may also have recorded on a second channel a series of synchronization pulses whereby the advance of the slide mechanism and the resetting of all the electronic circuits may be effected.

In order to register the response of the subject, there are provided as many conductive areas on the screen as there are items displayed on said other part of the screen, said conductive areas each being connected to a high impedance source and amplifier input, whereby if the area is touched a pulse appears at the output from the amplifier, this pulse being utilized to register that the particular area has been touched.

Means are preferably provided to ensure that if more than one conductive area is touched then only the first one to be touched is registered. Means are also preferably provided to inhibit the advancing of the slide mechanism in the case where one of the items is blanked out should the conductive area corresponding with that item be touched.

To assess the performance level of the subject a computer is preferably provided whereby the performance of the subject is computed and compared with a set criterion. When this criterion is exceeded then it is time for the material to be changed to something a little more difficult. In the case where less than three items are displayed the computer is preferably rendered inoperative.

DESCRIPTION OF THE DRAWINGS

The present invention will now be described in gerater detail by way of example with reference to the accompanying drawings, wherein:

FIG. 1 is a perspective view of the subject's console;

FIGS. 2A and 2B are diagrams showing the arrangement of material on the slides and the coding format;

FIG. 3 is a diagram of the projection system; and

FIGS. 4A—4C are sections of a circuit diagram partly in block form of a preferred form of touch detecting machine.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring first to FIG. 1 the subject's console comprises a cabinet 10 mounted on legs 12 and having a display screen 14 on the front face of the cabinet and a loud speaker 16. The projection system shown in FIG. 3 is housed inside the cabinet 10. Shown on the screen 14 is a typical slide the upper half of which contains a written word such as "door" and the lower half showing three pictorial representations of respectively from left to right, a door, a horse, and a hand.

FIGS. 2A and 2B show a typical slide which is used to project the picture on the screen 14. This comprises a central area 20 on which the word and the pictorial representations are printed, and upper and lower zones 21 and 22 which are not projected on the screen 14. Each zone is divided into three equal sections R_{d1}, R_{d2}, and R_{d3} for the upper zone 21 and C_{a1}, C_{a2} and C_{a3} for the lower zone 22. These six sections are arranged to cooperate with respective photo-conductive cells arranged behind the screen 14 as shown in FIG. 3. The projection system comprises a re-circulating tray automatic slide projector 24 taking 100 plastic mounted standard miniature slides and having a 75 mm. lens. In order to reduce the optical length of the projection system, the optical path is folded around on itself by means of three flat mirrors 25.

FIG. 2A shows a slide which is used for beginners, since it has only two pictorial representations. The third section of the lower half of the central area 20 is blank. The coding which operates the photo-conductive cells is shown as clear when the photo-conductive cell is to be